UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,071	08/20/2004	Govindarajan Natarajan	FIS920040062US1	5070

29505 7590 01/14/2008

LAW OFFICE OF DELIO & PETERSON, LLC.
121 WHITNEY AVENUE
NEW HAVEN, CT 06510

EXAMINER	
RAMDHANIE, BOBBY	

ART UNIT	PAPER NUMBER
1797	

MAIL DATE	DELIVERY MODE
01/14/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/711,071	NATARAJAN ET AL.	
	Examiner	Art Unit	
	Bobby Ramdhanie, Ph.D.	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :08/24/2004, 08/30/2004,01/10/2007.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 7, & 9-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Briscoe et al (US657890). Regarding Claim 1, Briscoe et al teaches a ceramic micro well plate comprising: A). A first ceramic greensheet (Figure 2); B) At least one vertical opening in said first ceramic greensheet, said vertical opening in said first ceramic greensheet being a reaction chamber of said micro well plate (Figure 2); C). A second ceramic greensheet (Figure 2); D). At least one vertical opening in said second ceramic greensheet that is aligned with said at least one vertical opening in said first ceramic greensheet (Figure 2); and E). An optical micro plug in said at least one vertical opening in said second ceramic greensheet, whereby said optical micro plug allows viewing of said reaction chamber of said micro well plate (Figure 2 & Column 8 line 65 to Column 9 line 2).

3. For Claim 2, Briscoe et al teaches the ceramic micro well plate of claim 1 wherein said first and second ceramic greensheets are laminated to one another (Column 8 lines 10-14).

4. For Claim 3, Briscoe et al teaches the ceramic micro well plate of claim 1 wherein said first and second ceramic greensheets are sintered greensheets (Column 8 lines 10-14).

5. For Claim 4 Briscoe et al teaches the ceramic micro well plate of claim 1 wherein said optical micro plug comprises an optically effective material selected from the group consisting of PDMS, PDMS plus a low concentration of capture molecules, glass, silica, ceramic, polymer and combinations thereof (Column 2 lines 48-58).

6. For Claim 5, Briscoe et al teaches the ceramic micro well plate of claim 1 wherein said optical micro plu g comprises a lens (Column 8 line 65 to Column 9 line 2). Examiner takes the position that a lens is inherent to any other detector used for gas chromatography such as a UV detector.

7. For Claim 7, Briscoe et al teaches the ceramic micro well plate of claim 1 wherein said optical micro plug comprises a sensor (Column 8 lines 36-Column 9 line 2).

8. For Claim 9, Briscoe et al teaches the ceramic micro well plate of claim 1 wherein said optical micro plug comprises a conductive optical micro plug (Column 8 lines 65-66).

9. For Claim 10, Briscoe et al teaches the ceramic micro well plate of claim 1 wherein said optical micro plug comprises a non-conductive optical micro plug (Column 8 lines 65-67).

10. For Claim 11, Briscoe et al teaches the ceramic micro well plate of claim 1 wherein said optical micro plug comprises a heater (Column 8 lines 38-39).

11. For Claim 12, Briscoe et al teaches the ceramic micro well plate of claim 1 wherein said optical micro plug comprises a cooler (Column 8 lines 57-59). Examiner takes the position that since Nickel has a high temperature coefficient, the metal when in contact with a hot sample acts as a cooler which transfers the heat and energy of the sample to the Nickel containing micro plug.

12. For Claim 13, Briscoe et al teaches a ceramic micro well plate comprising:

13. A). A first ceramic greensheet (Figure 2 Item 30); B). A first plurality of vertical openings in said first ceramic greensheet, said first plurality of vertical openings in said first ceramic greensheet being a plurality of reaction chambers (Figure 2 Items 86, 140, & 142); C). A second ceramic greensheet; a plurality of horizontal openings in said second ceramic greensheet, selected ones of said plurality of horizontal openings connecting selected ones of said first plurality of vertical openings (Figure 2); a third ceramic greensheet; a second plurality of vertical openings in said third ceramic greensheet aligned with said first plurality of vertical openings in said first ceramic greensheet; and a plurality of optical micro plugs in said second plurality of vertical openings, said plurality of optical micro plugs aligned with said first plurality of vertical openings to allow viewing of said reaction chamber of said micro well plate (Figure 2 Items 90 and 64).

14. For Claim 14, Briscoe et al teaches the ceramic micro well plate of claim 13 wherein said plurality of optical micro plugs comprise a transparent material selected from the group consisting of PDMS, PDMS in combination with capture molecules, glass, silica, ceramic, polymer and combinations thereof (Column 4 lines 56-64).

15. For Claim 15, Briscoe et al teaches the ceramic micro well plate of claim 13 wherein said plurality of optical micro plugs are selected from the group consisting of optical micro plug lenses, optical conductive micro plugs, optical non-conductive micro plugs, optical micro plug heaters, optical micro plug coolers, optical micro plug magnets, optical micro plug sensors and combinations thereof (Column 4 lines 56-64, & Column 8 line 44- Column 9 line 2).

16. For Claim 16, Briscoe et al teaches a method of forming a ceramic micro well plate comprising: A). Providing a first ceramic greensheet (Figure 2); forming a first plurality of vertical openings in said first ceramic greensheet, each of said first plurality of vertical openings in said first ceramic greensheet being reaction chambers of said micro well plate (Figure 1 Items 86, 140, and 142); B) Providing a second ceramic greensheet (Figure 2 Item 50); forming a second plurality of vertical openings in said second ceramic greensheet; aligning said first plurality of vertical openings in said first ceramic greensheets with said second plurality of vertical openings in said second ceramic greensheet (Figure 2 Items 90 and 64); and depositing an optically effective material into said second plurality of vertical openings in said second ceramic greensheet to form a plurality of optical micro plugs (Column 4 lines 56-64 & Column 8 line 44-Column 9 line 2), whereby said optical micro plugs allow viewing of said reaction chambers of said micro well plate.

17. For Claim 17, Briscoe et al teaches the method of claim 15 further including the steps of: providing a third ceramic greensheet; forming a plurality of horizontal openings in said third ceramic greensheet; and positioning said third ceramic greensheet between

said first and second ceramic greensheets such that selected ones of said plurality of horizontal openings connecting selected ones of said first plurality of vertical openings while said plurality of optical micro plugs are aligned with said first plurality of vertical openings being said reaction chambers (Figure 2).

18. For Claim 18, Briscoe et al teaches the method of claim 16 further including laminating said first and second greensheets to form said micro well plate having said plurality of optical micro plugs (Column 8 lines 9-18).

19. For Claim 19, Briscoe et al teaches the method of claim 18 further including sintering said laminated first and second greensheets to form said micro well plate having said plurality of optical micro plugs (Column 8 lines 9-18).

20. For Claim 20, Briscoe et al teaches the method of claim 16 wherein said formed plurality of optical micro plugs are selected from the group consisting of optical micro plug lenses, optical conductive micro plugs, optical non-conductive micro plugs, optical micro plug heaters, optical micro plug coolers, optical micro plug magnets, optical micro plug sensors and combinations thereof (Column 4 lines 56-64).

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

22. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

23. Claims 6 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Briscoe et al. Regarding Claim 6, Briscoe et al teaches the ceramic micro well plate of claim 1. Briscoe et al does not teach that the optical micro plug comprises a magnet. Briscoe et al does teach the use of nickel metal for use in the micro plug. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the micro plug to include a magnet because magnets are made out of iron which is a transition metal such as nickel, but unlike nickel, iron has a lower temperature coefficient and when combined to form an alloy such as steel (99.5% iron & 0.5% carbon), would provide a much better and faster signal response.

24. For Claim 8, Briscoe et al teaches the ceramic micro well plate of claim 1 wherein said optical micro plug includes marker molecules residing therein having high affinity to

their target for identification and quantification of said target. Briscoe et al further teaches the use of an ionization detector (Column 8 lines 66-67). Briscoe et al does not teach that the optical micro plug includes marker molecules residing therein having high affinity to their target for identification and quantification of said target. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Briscoe et al to include a chemical ionization apparatus in combination with the detector, because according to Briscoe et al, other detectors that are used with gas chromatographs could be used. Examiner takes the position that a different ionization source such as ESI or CI could be used because a mass spectroscopy detector could also be used.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bobby Ramdhanie, Ph.D. whose telephone number is 571-270-3240. The examiner can normally be reached on Mon-Fri 8-5 (Alt Fri off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BR

WALTER D. GRIFFIN
SUPERVISORY PATENT EXAMINER